## AMENDMENTS TO THE CLAIMS

- (Currently amended) A method of identifying screening for a genetic mutation that is associated with adult onset cerebellar ataxia in a human subject, said method comprising:
- (a) determining a first nucleic acid sequence of a human protein kinase C
  gamma gene from a first human subject exhibiting adult onset cerebellar ataxia;
- (b) comparing the first nucleic acid sequence to SEQ ID NO:3 to identify a difference between the first nucleic acid sequence from the first human subject exhibiting adult onset cerebellar ataxia and SEQ ID NO:3, wherein the difference alters the amino acid sequence encoded by the human protein kinase C gamma gene; and
- (c) eenfirming that performing co-segregation analysis to determine whether the difference identified between the first nucleic acid sequence and SEQ ID NO:3 is a genetic mutation associated with adult onset cerebellar ataxia by eo-segregation analysis.
- 2. (Previously presented) The method of Claim 1 wherein the first nucleic acid sequence from said first human subject is determined by amplification of at least a portion of the human protein kinase C gamma gene from genomic DNA isolated from said human subject to produce an amplified DNA and sequencing said amplified DNA.

## (Canceled)

4. (Previously presented) The method of Claim 1 wherein said co-segregation analysis comprises a method selected from the group consisting of direct sequencing, sequencing PCR-amplified DNA, single stranded conformation analysis, allele-specific PCR and restriction fragment length polymorphism analysis.

- (Previously presented) The method of Claim 4 wherein said co-segregation analysis comprises sequencing PCR-amplified DNA.
- (Previously presented) The method of Claim 4 wherein said co-segregation analysis comprises restriction fragment length polymorphism analysis.

## 7-42. (Canceled)

- 43. (Previously presented) The method of Claim 1, wherein the first nucleic acid sequence is a coding region of the human protein kinase C gamma gene selected from the group consisting of exon 1; exon 2; exon 3; exon 4; exon 5; exon 6; exon 7; exon 8; exon 9; exon 10; exon 11; exon 12; exon 13; exon 14; exon 15; exon 16; exon 17; and exon 18.
- 44. (Previously presented) The method of Claim 1, wherein the first nucleic acid sequence comprises exon 4 of the human protein kinase C gamma gene.
- 45. (Previously presented) The method of Claim 1, wherein the mutation associated with adult onset cerebellar ataxia is selected from the group consisting of a missense mutation, a deletion mutation, and an insertion mutation.
- (Previously presented) The method of Claim 45, wherein the mutation is a missense mutation.